



# CHAMPS 2018 & IEA-Annex 68 Expert Meeting

SyracuseCoE, Syracuse, NY

September 26-28, 2018

## PROGRAM

# CHAMPS 2018 and Annex 68

## The 15th International Forum and Workshop on Combined Heat, Air, Moisture and Pollutant Simulations

**CHAMPS 2018 and IEA-EBC Annex-68** will have a joint public meeting in the afternoon of September 26, 2018 to discuss the major challenges facing the combined heat, air, moisture and pollutant simulations for the design and operation of sustainable buildings, highlight the most recent progresses, and identify opportunities for further collaboration. Topics will include:

1. **Whole building IEQ and energy performance:** Modeling and simulation of combined heat, air, moisture, and pollutant transport processes in and around buildings, and how these processes impact IEQ and building energy efficiency;
2. **Healthy and intelligent buildings:** Interaction and interdependencies between IEQ and energy efficiency measures, effectiveness of source reduction, ventilation and air cleaning strategies; model-based predictive control, application of internet of things (IOT) technology in distributed building environmental control;
3. **Climate, community and site planning:** Climate change effects on IEQ, urban and community planning, micro-urban climate and energy efficiency of building clusters;
4. **Building envelope performance:** hygrothermal performance of buildings in different climates, leakage and moisture control, envelope-integrated ventilation and energy storage systems, energy and durability;
5. **Micro-environment around occupants:** demand-based personal environmental control, occupant behavior and impacts on IEQ and energy efficiency;
6. **Design studio:** Methods and tools for coordinated and integrated urban and building systems design, building information modeling (BIM), CHAMPS simulation framework, software, and optimization techniques, common databases of materials, assemblies, building topologies, climates, and real-world versus design performances.
7. **Case studies:** Applications of CHAMPS for building systems design and model-based predictive controls.

Priorities will be given to the discussion of CHAMPS development and applications for residential buildings, especially those complementing the effort of IEA-EBC Annex 68 Indoor Air Quality Design and Control in Low-Energy Residential Buildings.

## The 6th Expert Meeting of IEA-EBC Annex 68 Indoor Air Quality Design and Control in Low Energy Residential Buildings

**Only IEA-EBC Annex 68 Project Participants** will continue to attend the 6th Expert Meeting on September 27 and 28 to discuss the results of common exercises in each subtask of the project, reporting, and the work plan for the next steps. Whole group meeting and separate working sessions may be planned for the subtasks of the project:

1. **Defining the metrics (completed)**
2. **Pollutant loads in residential buildings**
3. **Modeling – review, gap analysis and categorization**
4. **Strategies for design and control of buildings**
5. **Field measurements and case studies**

# SCHEDULE

Wednesday, September 26, 2018		
1:30 - 2:00pm	Registration	Lobby
2:00 - 3:15	<p><b>CHAMPS Session 1 (Chair: J. Grunewald)</b></p> <ol style="list-style-type: none"> <li>1. Current challenges and future directions in modeling occupant's adaptive response to the environment. By <b>Dr. Richard de Dear</b>, University of Sydney, Australia</li> <li>2. Modeling the microenvironment around an occupant: effects of local heating, cooling and ventilation. By <b>Dr. Meng Kong</b>, Syracuse University, USA</li> <li>3. Modelling transport of heat, moisture and pollutants in cities. By <b>Dr. Yuguo Li</b>, University of Hong Kong, China</li> <li>4. Urban Morphology and microclimate: ongoing studies and future outlook. By <b>Dr. Zhi Gao</b>, Nanjing University, China</li> <li>5. Beyond 3D: Experimental tools for designing with energy. By <b>Dr. Bess Krietemeyer</b>, Syracuse University, USA</li> </ol>	Room 203
3:15	Coffee Break and Networking	
3:45 - 5:00	<p><b>CHAMPS Session 2 (Chair: C. Rode)</b></p> <ol style="list-style-type: none"> <li>1. Challenges in durability assessment and future directions in continuum modeling of Heat and mass problems. By <b>Dr. Jan Carmeliet</b>, ETH Zurich, Switzerland</li> <li>2. Advanced nanoporous sorbents for autonomous moisture control. By <b>Dr. Menghao Qin</b>, Technical University of Denmark, Denmark</li> <li>3. Indoor air quality in new 'low carbon' buildings in the UK: a cross sectoral analysis. By <b>Dr. Esfand Burman</b>, University College of London (UCL), UK</li> <li>4. Use of CHAMPS Model for Simulating Energy on an Extensive Green Roof. By <b>Ms. Yige Yang</b>, Syracuse University, USA</li> <li>5. Modeling the energy consumption of campuses: overview of a simulation platform. By <b>Dr. John Grunewald</b>, TU Dresden, Germany</li> </ol>	Room 203
5:00 - 5:30	<p><b>Annex-68 Public Session (Chair: J. Zhang)</b></p> <ol style="list-style-type: none"> <li>1. ASHRAE IAQ Guide for residential buildings (via Web). By <b>Mr. Larry Schoen, P.E.</b>, ASHRAE Fellow, Schoen Engineering Inc.</li> <li>2. Annex-68 IAQ Design and Control for Low Energy Residential Buildings. By <b>Dr. Carsten Rode</b>, Operating Agent of Annex-68, Technical University of Denmark, Denmark</li> </ol>	Room 203

# SCHEDULE

<b>Thursday, September 27, 2018</b>		
8:30 – 10:00 am	<b>Annex 68 Subtask 2 (Chaired by <i>M. Qin</i>)</b> Common Exercises and Reporting	Room 203
10:00 – 10:30	Coffee Break and Networking	
10:30 – Noon	<b>Annex 68 Subtask 3 (Chair: <i>J. Grunewald</i>)</b> Common Exercises and Reporting	Room 203
Noon	Lunch	
1:00 – 3:00 pm	<b>Annex 68 Subtask 4</b> Common Exercises and Reporting	Room 203
3:00 – 3:30	Coffee Break and Networking	
3:30 – 5:00	<b>Annex 68 Subtask 5</b> Common Exercises and Reporting	Room 203
5:00 – 6:00	Subtask Leaders/Co-Leaders Meeting	Room 203
6:30 - 8:30	Annex 68 Dinner	
<b>Friday, September 28, 2018</b>		
8:30am - 3:00pm	<b>Annex 68 Expert Meeting</b> (working sessions TBD)	

## Chairs

**Prof. Edward Bogucz**, Syracuse University and SyracuseCoE, USA

**Prof. Carsten Rode**, Technical University of Denmark, Operating Agent of Annex-68

**Prof. John Grunewald**, TU Dresden, Germany

**Prof. Jensen Zhang**, Syracuse University, USA

## Organizers

TU Dresden

Technical University of Denmark

University College of London

Nanjing University

University of La Rochelle

Syracuse University

The University of Tokyo

Tsinghua University

## In Collaboration with



Engineering &  
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